DOCUMENT RESUME

ED 198 398 CE 028 190

AUTHOR Mertens, Donna M.
TITLE Effects of Vocational Education on Participants.
PUB DATE 81
NOTE 23p.; Paper presented at the Annual Meeting of the American Educational Research Association (Los Angeles, CA, April 1981). For a related document see CE 028 181.

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Educational Assessment; Educational Research; Employment; *Followup Studies; *Job Satisfaction; *Outcomes of Education; Participant Satisfaction; Postsecondary Education; *Program Effectiveness; Secondary Education; Student Attitudes; Success; Unemployment; *Vocational Education

ABSTRACT

A study was conducted to identify, assemble, and summarize all studies on the effects of vocational education that were reported from 1968 to 1979. Computer searches, reviews of bibliographies, card catalogues, direct solicitation of reports, and consultant recommendations yielded 117 local, state, regional, and national studies that met the criteria for the review. Studies were categorized according to the type of dependent variable that they addressed, as well as the level of schooling. The dependent variables fell into three broad categories: employment, education, and ancillary effects. In the area of employment effects, the results suggested that a higher percentage of vocational graduates (compared with nonvocational graduates) are employed upon graduation from high school; however, the unemployment rates for the two groups are not significantly different. At the postsecondary level, two comparative studies found that postsecondary vocational education graduates experienced less unemployment than did individuals who did not have postsecondary training or who were enrolled in a nonvocational postsecondary program. In the area of educational effects, all twenty-one of the state and local studies that addressed satisfaction with training at the secondary level reported that the majority of the vocational students were satisfied with their training. (LRA)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED198398

THE EFFECTS OF VOCATIONAL EDUCATION ON PARTICIPANTS

Donna M. Mertens
National Center for Research in Vocational Education
Ohio State University
1960 Kenny Road
Columbus, Ohio 43210

The effects from participation in vocational education are probably the most debated policy questions relevant to vocational education. Because of the importance of these questions, vocational education has been the subject of a great many exhaustive studies. Unfortunately, many of these studies have not been readily available. The existing reviews have tended to emphasize a selected sample of the better known studies, often based on national data bases such as the National Longitudinal Surveys of Labor Market Experience and the National Longitudinal Study of the High School Class of 1972 (Grasso and Shea, 1979a and b). There remained among researchers who are interested in such reviews a feeling, or sense, that there were a great many more unreported studies which would permit greater certainty in the conclusions drawn as to the effects of vocational education.

The present study was conducted to attempt to identify, assemble, and summarize all studies on the effects of vocational education that were reported from 1968 through 1979. The steps that were taken to identify and assemble all relevant studies included: computer searches, reviews of bibliographies, card catalogues, direct solicitation of reports, and consultant recommendations. Although the search was quite comprehensive, readers will have to judge for themselves whether the inclusion of any additional studies would significantly alter the conclusions derived from the studies that were reviewed.

The search produced nearly 1500 titles that were screened to eliminate irrelevant studies and to determine those studies that met the following criteria for methodological rigor: had a sample size over twenty-five, included an adequate description of its methodology, had a response rate of 40 percent or more (or the researcher reported on nonrespondents), and included some standard of comparison (e.g. vocational vs. nonvocational students).

The 117 local, state, regional and national studies that met the above criteria form the basis of this review. They were categorized according to the type of dependent variable that they addressed, as well as the level of schooling (i.e. postsecondary vs. secondary). The dependent variables fell into three broad categories: employment, education and ancillary effects.

Paper presented at the 1981 annual meeting of the American Educational Research Association, Los Angeles, California.

CE028190

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Donna M. Mertens

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Employment Effects

Employment effects included unemployment rate, training-related placement, earnings, employee satisfaction, and employer satisfaction.

Unemployment

Secondary. Eleven of the state and local studies compared the employment experiences of vocational and nonvocational high school graduates (Burgess, 1979; Career and Vocational Education System, 1978; Copa, Irvin & Maurice, 1976; Dinger, Meyers & Berner, 1973; Duval County School Board, 1979; Herrnstadt, Horowitz & Sum, 1979; Hu, Lee, Stromsdorfer & Kaufman, 1968; Katz, Morgan & Drewes, 1974; Kaufman & Lewis, 1972; Oregon Department of Education, 1975; Swanson, 1976). The results suggested that a higher percentage of vocational graduates are employed upon graduation from high school, however, the unemployment rates for the two groups are not significantly different. Some of the studies based on the national longitudinal data (Grasso & Shea, 1979b; Parnes, Miljus, & Spitz, 1970; Kohen, 1970; Center for Human Resources, no date) reported no labor market advantage for male vocational graduates, however, female vocational graduates did experience less unemployment than their general curriculum peers. Based on the Class of 1972 data base, Creech (1977) and Fetters (1975) reported positive labor market experiences for both sexes.

Nineteen state and local studies reported differences among vocational program areas (Bice & Brown, 1973; Career and Vocational Education System, 1977; Durkee, 1975; Elson et al., 1976; Elson, 1978; Elson & Gerken, 1979; Enoch, 1977; Felstehausen et al., 1973; Haynes, 1970; Henry, 1974; Katz et al., 1974; Loeb, 1973; Molnar, Pesut & Mihalka, 1973; Parker, Green, Gonzales, Trujillo & English, 1978; Parker, Whelan, Gonzales, Trujillo & English, 1979; Parker, Whaley & Uranga, 1977; Preston, 1976; Tatham et al., 1975; Terry, 1975). The results indicated that health and home economics graduates consistently had the highest unemployment rates. The high rate reported for home economics is probably an artifact of the failure to distinguish between home making and occupational home economics. Using the national level Project Metro data, Eninger (1972) reported the lowest rate of unemployment for the technical area.

Postsecondary. At the postsecondary level, two comparative studies found that postsecondary vocational education graduates experienced less unemployment than did individuals who had no postsecondary training or who were enrolled in a nonvocational postsecondary program (Bowlby & Schriver, 1969; Delvaney, 1974). A third comparative study by Shymoniak (1972) found that selected vocational areas had lower unemployment rates than general graduates (i.e. office, trade and industry, and technical). A national study of graduates of 103 technical and vocational colleges reported an overall unemployment rate of only 2.5 percent (Gartland & Carmody, 1970).

The results of nineteen state and local studies that examined unemployment rates for postsecondary graduates by program areas support the finding that vocational education graduates tend to have low unemployment rates (Baratta, 1978; Bice & Brown, 1973; Clark, 1975; Department of Occupational Education and Technology, 1977; Division of Postsecondary Vocational Education, 1975; Eyler, Kelly & Snyder, 1974; Gammel, Brodsky, & Alfred, 1976; Goodman, 1975; Hall, Gray & Berry, 1975; Larkin, 1977; Parker et al., 1979; Preston, 1976; Quanty, 1976; Research Office, Southwestern College, 1974; Roberts, 1974; Shymoniak, 1972; University of Hawaii, 1972; Wilms, 1975; Wisconsin Board of Vocational, Technical & Adult Education, 1979). No differences by program area were notable at the postsecondary level, in contrast to the secondary level.

Training-Related Placement

Secondary. A majority of secondary-level vocational students find employment that is related to the occupational area in which they were trained. Of the ninety-eight separate percentages reported in twenty state and local studies, 72 were over 50 percent and 48 were over 70 percent (Bice & Brown, 1973; Career and Vocational Education System, 1977; Conroy & Diamond, 1976; Department of Occupational Education and Technology, 1977; Durkee, 1975; Elson, 1978; Elson et al., 1976; Elson & Gerken, 1979; Enoch, 1977; Felstehausen et al., 1973; Haynes, 1970; Katz et al., 1974; Loeb, 1973; McCowan, Mongerson & Carter, 1971; Nassau County, 1973; Parker et al., 1977; Parker et al, 1979; Richardson & McFadden, 1975; Tatham et al., 1975; Terry, 1975). The highest rates of placement were associated with health and business and office graduates.

National studies found that a majority of vocational education graduates obtain jobs related to their training (Eninger, 1972; National Center for Education Statistics, 1975; Tabler, 1976).

Postsecondary. A majority of the postsecondary level vocational students also find employment that is related to the occupational areas in which they were trained. In fourteen state and local studies, 62 separate percentages were reported; 57 of these were greater than 50 percent and 49 were greater than 70 percent (Bice & Brown, 1973; Carter, 1975; Clark, 1975; Davison, 1968; Florida State Advisory Council, 1976; Gammel et al., 1976; Hall et al., 1975; Larkin, 1977; Parker et al., 1979; Quanty, 1976; Research Office, Southwestern College, 1974; Roberts, 1974; University of Hawaii, 1972; Wisconsin Board of Vocational, Technical and Adult Education, 1979). No differences by program areas were noted.

One national study found that 74 percent of the respondents were employed in training-related occupations (Noeth & Hanson, 1976).

Earnings

Secondary. Secondary level vocational education in some circumstances appears to confer an initial earnings advantage, but this advantage does not last more than a few years. The earnings variable is one which is particularly subject to a variety of influences beyond the effect of vocational education itself. Burgess (1979), Cole et al. (1976), Herrnstadt et al. (1978), and Katz et al. (1974) reported no difference between vocational and nonvocational graduates in earnings. In contrast to these studies, Hu et al. (1968), Market Opinion Research (1973), and Swanson (1976) reported that vocational education graduates earned higher wages than nonvocational graduates relatively soon after graduation from high school, but that this advantage was dispelled over time. In state and local studies that examined vocational program differences, the area of trade and industry was most frequently associated with the highest earnings, and home economics was associated with the lowest earnings (Elson, 1978; Hu et al., 1968; McCowan et al., 1971; Parker et al., 1979; Richardson & McFadden, 1976; Troutman and Breshears, 1969).

Using the NLS data, Grasso and Shea (1979b) concluded that curriculum has little effect on earnings for male vocational graduates but female vocational graduates tend to outearn their peers. Based on the Class of 1972 and Project Talent data, Conroy (1979) reported that vocational graduates outearn nonvocational graduates. Eninger (1972) found that trade and industry graduates had the lowest earnings, thus confirming the state and local studies' findings.

Postsecondary. Insufficient information is available to draw conclusions on the impact of postsecondary vocational education (as compared to nonvocational education) on earnings. Schriver and Bowlby (1971) reported that postsecondary vocational graduates outearned secondary (not necessarily vocational) graduates, and Shymoniak (1972) found that community college office and trade and industry graduates outearned general graduates. He did not find any differences between general graduates and any other vocational program areas.

Differences in earnings were notable for vocational programs in six studies (Baratta, 1978; Division of Postsecondary Education, 1975; Goodman, 1975; Parker et al., 1979; Quanty, 1976; Wisconsin Board of Educational, Technical and Adult Education, 1979). The technical program was associated with the highest earnings in five of the six studies.

Employee Satisfaction

Secondary. Job satisfaction is one of the most frequently measured variables in follow-up studies, and virtually all studies agree that former secondary level vocational students are satisfied with their jobs (Burgess, 1979; Conroy & Diamond, 1976;

Felstehausen et al., 1973; Herrnstadt et al., 1979; Katz et al., 1974; Kaufman & Lewis, 1972; McCowan et al., 1971; Richardson, 1975).

The satisfaction of both vocational and nonvocational graduates is usually found to be in the upper ranges of the measures that are used. Based on the Class of 1972 data, Tabler (1976) reported that the combined percentages of vocational-technical students satisfied or very satisfied with selected aspects of their jobs were higher than those for general or academic students.

Postsecondary. Former postsecondary vocational students also report being satisfied with their jobs (Ballo, 1971; Conroy & Diamond, 1976; Von Stroh, 1968; Wilms, 1975). The results suggest that vocational graduates' satisfaction is comparable to or greater than that of graduates from other curricula.

Employer Satisfaction

Secondary. Employers report being satisfied with the preparation of graduates of secondary vocational programs and in some cases more satisfied than with other comparable entry-level workers (Blackford, Ruch, Aheran, & Seymour, 1979; Enoch, 1977; Felstehausen et al., 1973; Iowa Department of Public Instruction, 1979; Kaufman & Lewis, 1972; Market Opinion Research, 1973; Molnar et al., 1973; Parker et al., 1979; Report to the Iowa Department of Public Instruction, 1977; Schowalter, 1974).

Postsecondary. Similar to the secondary level, postsecondary vocational graduates were rated positively by employers. A study of secondary and postsecondary vocational graduates from Iowa reported that vocationally trained employees were considered "better prepared" by employers than nonvocationally trained employees on job skills, technical knowledge, basic reading, and verbal skills (Report to the Iowa Department of Public Instruction, 1977). Hodges (1973) found that graduates of an agricultural mechanics program were rated above other entry-level workers. Parker et al. (1979) reported no differences by vocational program areas in employers' ratings of satisfaction.

Education Effects

Education effects included satisfaction with training, continuing education, basic skill attainment, and dropout prevention.

Satisfaction with Training

Secondary. All twenty-one of the state and local studies that addressed this variable reported that the majority of the vocational students were satisfied with their training (Ballo,

1971; Bergstrand, Esser & Nelson, 1979; Burgess, 1979; Career and Vocational Education Section, 1978; Dinger et al., 1973; Duval County School Board, 1979; Elson, 1978, Elson & Gerken, 1979; Elson et al., 1976; Enoch, 1977; Felstehausen, 1973; Katz et al., 1974; Kaufman & Lewis, 1972; Loeb, 1973; Market Opinion Research, 1973; McCowan et al., 1971; Richardson, 1975; Robon, 1977; Swanson, 1976; Troutman & Breshears, 1969; Wilms, 1975). The percentage of satisfied graduates was generally between 80 and 90 percent, supporting the hypothesis that vocational graduates perceive their training as satisfactory.

Two national studies also confirmed these findings. Grasso and Shea (1979b) and Nolfi et al. (1977) both reported similarly positive results.

Postsecondary. Similar to the secondary level studies, postsecondary level research also indicated that a majority of the graduates report satisfaction with their training (Baratta, 1978; Carter, 1975; Clark, 1975; DeVaney, 1974; Gammel et al., 1976; Hall et al., 1975; Hamby et al., 1978; Larkin, 1977; Preston, 1976; Quanty, 1976; Roberts, 1974; Robon, 1977; Swanson, 1976; Van Bremer, 1979; Von Stroh, 1968).

Continuing Education

Secondary. Of the eight state and local studies that compared the rate of continuing education for vocational and nonvocational groups, six found that nonvocational students continued their education at a higher rate than vocational students (Burgess, 1979; Career and Vocational Education System, 1977; Conroy & Diamond, 1976; Duval County School Board, 1979; Katz et al., 1974; Kaufman & Lewis, 1972). Two of the studies reported no difference between the groups (Market Opinion Research, 1973; Oregon Department of Education, 1975), however, this may be due to their use of a broad definition of continuing education.

The results of twenty-six state and local studies suggested that vocational program areas do not differ among themselves in their rates for continuing their education (Bice & Brown, 1973; Conroy & Diamond, 1976; Division of Postsecondary Education, 1975; Durkee, 1975; Duval County School Board, 1979; Elson et al., 1976, Elson, 1978; Elson & Gerken, 1979; Enoch, 1977; Eyler et al., 1974; Felstehausen, 1973; Goodman, 1975; Katz, 1974; Kaufman & Lewis, 1972; Loeb, 1973; Market Opinion Research, 1973; McCowan et al., 1971; Oregon Department of Education, 1975; Parker et al., 1978; Parker et al., 1979; Parker et al., 1976; Preston, 1976; Quanty, 1976; Research Office, Southwestern College, 1974; Richardson & McFadden, 1976; Terry, 1975). The data indicate that approximately one-third of the vocational students continued their education. Results from the NLS and the Class of 1972 found results similar to those reported above (Creech, 1977; Eckland, 1976; Fetters, 1975 & 1977; Grasso & Shea, 1979b).

Postsecondary. Research on continuing education at the postsecondary level focuses primarily on community and junior college graduates who go on to four-year institutions. The results of the studies varied so much by program area that it is difficult to draw conclusions overall (Carter, 1975; Clark, 1975; Davison, 1968; Larkin, 1977). A larger percentage of trade and industry graduates tended to continue their education than did students from other program areas.

Basic Skills

Secondary. Insufficient information is available to determine the effect of vocational education on the attainment of basic skills. No studies were found that measured students' levels of basic skills before and after participation in a particular curriculum, therefore, any differences between curriculum groups might be attributable to characteristics of students prior to entry into the curriculum.

Ludeman (1976) examined the mathematical abilities of vocational and nonvocational students. He concluded that vocational education students performed better in terms of practical application of mathematics skills and slightly below average in more advanced and theoretical mathematical concepts.

Postsecondary. No studies were found that addressed basic skill attainment at the postsecondary level.

Dropout Prevention

Secondary. The research currently available is insufficient to answer the question "Does vocational education serve to retain students in school who might otherwise have dropped out?" Herrnstadt et al. (1979) reported that programs that include outside work experience provide additional motivation to stay in school. One possible explanation of this phenomenon emerged from the work of Brantner and Enderlein (1972) who found that dropouts were immature and valued prestige and security. They hypothesized that dropouts leave school because they lack the maturity to seek the advantages of education and looked to the world of work to satisfy their needs for prestige and security. Troutman and Breshears (1969) reported that students frequently drop out to take a job.

The national level data presented mixed results. Nolfi et al. (1977) found that vocational education had the highest drop out rate when compared to the academic and general curriculum. Grasso and Shea (1979b) found that young women in vocational programs were more likely to graduate from high school then their general peers; their results for young men were mixed.

Postsecondary. Using an analysis of the Class of 1972 data, Peng et al. (1977) reported that graduates of high school vocational programs were more likely than college preparatory students to drop out of their college program. This was the only rigorously conducted study that addressed this variable at the postsecondary level.

Ancillary Effects

Ancillary effects included the following variables: aspirations, attitudes and values, feelings of success, and citizenship. These variables were only addressed for secondary-level education.

Aspirations

The aspirations of the majority of secondary level vocational students appeared to focus on skilled occupations that do not require a college degree (Ludeman, 1976). Approximately one-third of the vocational students did plan to attend college (Strickler, 1973). The results of four national studies tended to support this trend, with fewer vocational that nonvocational students planning to attend college (Grasso & Shea, 1979b; Fetters, 1974a & 1976; Zeller, 1970).

Attitudes and Values

The attitudes of secondary level vocational graduates appear to be positive toward the value of their courses and course content (Market Opinion Research , 1973). Strickler (1973) reported no significant difference in occupational values between vocational and nonvocational students. Grasso and Shea (1979b), based on the NLS data, reported that thirteen times as many young men mentioned vocational courses favorably as unfavorably when asked to name their best and least liked courses. Five times as many females gave vocational and commercial subjects a positive rather than negative rating.

Feelings of Success

No significant differences were found for feelings of success between secondary level vocational and nonvocational students (Market Opinion Research, 1973). Based on the Class of 1972 data, Fetters (1974b; 1975) supported the finding that vocational graduates feel positively about themselves.

Citizenship

No significant differences were detected in the voting behavior of vocational and nonvocational secondary education graduates (Conroy & Diamond, 1976; Hu et al., 1968). The rate of voting behavior was low for both groups, suggesting that, generally, citizenship behavior should receive more emphasis.

Summary

The following is a summary of the major findings of this review:

- o No difference in unemployment rates were found for vocational and nonvocational high school graduates. Postsecondary vocational graduates generally had lower unemployment rates than did their nonvocational peers.

- o A majority (over 50 percent, usually closer to 70 percent) of secondary and postsecondary vocational graduates obtained jobs in training-related areas.

- o Mixed results were reported for earnings. Some studies reported no differences between vocational and nonvocational graduates; others reported an initial earnings advantage for vocational graduates which disappeared over time. Trade and industry graduates at the secondary level and technical graduates at the postsecondary level consistently had higher earnings than graduates of other vocational programs. A majority of employers were satisfied with vocational graduates; a majority of graduates were satisfied with their jobs.

- o Insufficient information was reported to draw any conclusions concerning basic skill attainment and dropout prevention.

- o About one-third of vocational graduates continued their education beyond the secondary level, while almost twice as many nonvocational graduates did so.

- o Vocational graduates were satisfied with their training.

- o Vocational graduates reported feeling good about themselves.

- o Civic activity (e.g., voting) was infrequent for both vocational and nonvocational graduates.

Estimating the long-range effects of any educational experience is probably the most difficult problem in all of educational research. When the outcomes of interest are subject to many influences over which the education program has little or no control, the difficulties are multiplied many times. Although

it is recognized that more and better research is needed, it is always needed. Those who wish to withhold judgments until the definitive research has been performed will have a very long wait. None of the studies included in this review, nor all of them in combination, can provide definitive answers on the effects of vocational education. The summary of the results across many studies can, however, suggest certain effects that apppear likely to have been due to participation in vocational education.

REFERENCES

Ballo, G. R. A comparative follow-up study of graduates and non-graduates. Lewiston, Idaho: Lewis-Clark Normal School, Division of Vocational-Technical Education, February 1971. (ERIC Document Reproduction Service No. ED 013 371)

Baratta, M. K. Follow-up of 1977 occupational graduates. Palas Hills, Illinois: Moraine Valley Community College, June 1978. (ERIC Document Reproduction Service No. ED 157 578)

Bergstrand, J., Esser C., & Nilson, O. Impacts of secondary vocational education on later performance in Wisconsin's postsecondary VTAE system. Menomonie, Wisconsin: Center for Vocational, Technical and Adult Education, 1979.

Bice, G. R. & Brown, R. Selected information about vocational-technical education in Tennessee for the school year 1972-73. Information series no. 20. Nashville, Tennessee: Tennessee State Department of Education, Division of Vocational-Technical Education. Tennessee University, Knoxville, Occupational Research and Development Coordinating Unit, 1973. (ERIC Document Reproduction Service No. ED 091 516)

Blackford, B., Ruch, R., Aheran., J, & Seymour, C. Why Johnny can work: An analysis of employers' ratings of secondary area vocational technical center graduates. Pontiac, Michigan: Northeast Oakland Vocational Education Center, second printing, 1979.

Bowlby, R. L. & Schriver, W.R. Nonwage benefits of vocational training: Employability and mobility. Knoxville, Tennessee: Tennessee University, 1969. (ERIC Document Reproduction Service No. ED 042 008)

Branter, S. T. & Enderlein, T. E. A comparison of vocational and nonvocational high school dropouts and retainers. University Park, Pennsylvania: Pennsylvania State University, 1972. VDS Monograph No. 7.

Burgess, D. E. Follow-up survey of 1978 graduates for Warren Consolidated Schools. Warren, Michigan: Warren Consolidated School District, 1979.

Career and Vocational Education System, Oregon Department of Education. 1976 high school follow-up system, summary of findings. Salem, Oregon: Oregon Department of Education, 1977.

Career and Vocational Education Section, Oregon Department of Education. Follow-up of 1977 secondary vocational program graduates and early leavers. Salem, Oregon: Oregon Department of Education, 1978.

Carter, E. H. Follow-up study of New River Community College transfers who graduated in the 1972-73 school year and follow-up of 1974 graduates in occupational-technical programs. Dublin, Virginia: New River Community College, 1975. (ERIC Document Reproduction Service No. ED 118 171)

Center for Human Resource Research. Years for decision: A longitudinal study of the educational and labor market experience of young women. Columbus, Ohio: Center for Human Resource Research, The Ohio State University, Vol. 1-4, n.d. (ERIC Document Reproduction Service No.'s ED 049 376, ED 076 812, ED 094 135, and ED 147 540)

Clark, D. Follow-up of Maple Woods Community College occupational graduates, 1970-1974. Final report. Kansas City, Missouri: Maple Woods Community College, 1975. (ERIC Document Reproduction Service No. ED 116 753)

Conroy, W. G., Jr. Some historical effects of vocational education at the secondary level. Phi Delta Kappan, 1979, 12, 267-271.

Conroy, W. G., Jr. & Diamond, D. E. The impact of secondary school occupational education in Massachusetts. Lowell, Massachusetts: University of Lowell, College of Management Science, Spring 1976. (ERIC Document Reproduction Service No. ED 122 095)

Copa, G., Irvin, D. E., and Maurice, C. Status of former high school students: Procedure for local assessment. Minneapolis, Minnesota: University of Minnesota, 1976.

Creech, F. R. et al. Comparative analysis of postsecondary occupational and educational outcomes for the Class of 1972. Princeton, New Jersey: Educational Testing Service, 1977. (ERIC Document Reproduction Service No. ED 139 845)

Davison, M. Career graduates: A profile of job experience and further study of students with AAS degrees. City University of New York. Office of College Affairs. December 1968. (ERIC Document Reproduction Service No. ED 028 295)

Department of Occupational Education and Technology. Tex-SIS follow-up postsecondary follow-up management information system. Monograph No. 4, 1977. (ERIC Document Reproduction Service No. ED 145 883)

DeVaney, J. U. Follow-up survey of students at Eastern University College. Thatcher, Arizona: Eastern Arizona College, 1974.

Dinger, J. C. et al. A follow-up study of the post school employment success of graduates from four high school special education programs in the Midwestern Intermediate Unit IV in Pennsylvania for the school years 1969-70, 1970-71, and 1971-72. Final report. Grove City, Pennsylvania: Midwestern Intermediate Unit 4, 1973. (ERIC Document Reproduction Service No. ED 110 726)

Division of Postsecondary Education, New Hampshire State Department of Education. 1975 graduates placement report: New Hampshire Technical Institute and New Hampshire Vocational-Technical Colleges. (ERIC Document Reproduction Service No. ED 118 194)

Durkee, J. R. Wyoming placement and follow-up pilot project for vocational education students Fremont County 1970-74. Laramie, Wyoming: University of Wyoming, 1975.

Duval County School Board. Jacksonville. Student placement and follow up program, annual report. Jacksonville, Florida: Duval County School Board, 1979.

Eckland, B. K. & Bailey, J. P. National longitudinal study of the high school class of 1972. Capsule description first follow-up survey data. Durham, North Carolina: Research Triangle Institute, Center for Educational Research and Evaluation, 1976. (ERIC Document Reproduction Service No. ED 120 251)

Elson, D. E. et al. 1976 Vocational Education Management Information System for Virginia (VEMIS-V). Blacksburg, Virginia: Virginia Polytechnic Institute, 1976. (ERIC Document Reproduction Service No. ED 131 234)

Elson, D. E. Outcomes of vocational education in Virginia 1978: A summary of the follow-up of 1976-1977 secondary vocational education completions in Virginia. Richmond, Virginia: Virginia Department of Education, Vocational and Adult Education, 1978.

Elson, D. E. & Gerken, S. H. Outcomes of vocational education in Virginia, 1979: A summary of the follow-up of 1977-78 secondary vocational education completions in Virginia. Richmond, Virginia: Virginia Department of Education, 1979.

Eninger, M. V. Effectiveness evaluation data for major secondary education systems in the United States Volumes I and II. Pittsburgh, Pennsylvania: Educational Systems Research Institute, Vol. 4, (Project Metro), 1972. (ERIC Document Reproduction Service No. ED 088 991)

Enoch, L. W. A follow-up of former vocational students from the Roanoke City Public Schools 1975-76. Final report. Roanoke, Virginia: Roanoke City Public Schools, Department of Vocational and Adult Education, May 1977. (ERIC Document Reproduction Service No. ED 143 879)

Eyler, D. [illegible], Kelly, S. J., & Snyder, F. A. Post-college activities of former occupational-technical students. Richmond, Virginia: Virginia State Department of Community Colleges, 1974. (ERIC Document Reproduction Service No. ED 101 798)

Felstehausen, J. L. et al. Follow-up report on Illinois "Class of 71" occupational program alumni. Final report. Charleston, Illinois: Eastern Illinois University, Center for Educational Studies, June 1973. (ERIC Document Reproduction Service No. ED 087 866)

Fetters, W. B. National longitudinal study of the high school class of 1972. Capsule description of high school seniors. Base year survey. Washington, D.C.: National Center for Educational Statistics, 1974a. (ERIC Document Reproduction Service No. ED 097 368)

Fetters, W. B. Changes in attitudes one and one-half years after graduation. Washington, D.C.: National Center for Education Statistics, 1974b. (ERIC Document Reproduction Service No. ED 117 155)

Fetters, W. B. National longitudinal studies of the high school class of 1972. Base year study: Student questionnaire and test results by academic ability, socioeconomic status and region. Washington, D.C.: National Center for Education Statistics, 1976. (ERIC Document Reproduction Service No. ED 120 252)

Fetters, W. B. National longitudinal studies of the high school class of 1972. Comparative profiles one and one-half years after graduation. Washington, D.C.: National Center for Education Statistics, 1975. (ERIC Document Reproduction Service No. ED 120 202)

Fetters, W. B. National longitudinal studies of high school seniors. Fulfillment of short-term educational plans and continuance in education. Washington, D.C.: National Center for Education Statistics, 1977.

Florida State Advisory Council on Vocational and Technical Education. Measures of success: A survey of selected vocational and technical education programs in Florida that train students in occupations requiring licenses, 1976. (ERIC Document Reproduction Service No. ED 132 260)

Gammel, J. M., Brodsky, S. M., & Alfred, R. L. Follow-up study of 1969-1975 graduates of the Division of Technology of New York City Community Colleges. Brooklyn, New York: New York City Community College, April 1976. (ERIC Document Reproduction Service No. ED 121 396)

Goodman, G. A. Priority: Obtaining accurate information concerning placement and follow-up of program completions at all levels. Vincennes, Indiana: Vincennes University, 1975. (ERIC Document Reproduction Service No. ED 113 607)

Grasso, J. T. & Shea, J. R. Effects of vocational education programs: Research findings and issues. The Planning Papers for the Vocational Education Study. Washington, D.C.: U.S. Government Printing Office, April 1979a.

Grasso, J. T. & Shea, J. R. Vocational education and training: Impact on youth. Berkeley, California: The Carnegie Council on Policy Studies in Higher Education, 1979b.

Hall, W., Gary, R. & Berry, A. O. Follow-up study of machine tool technology and building construction graduates: Evaluation report. South Portland, Maine: Southern Maine Vocational Technical Institute, August 1975. (ERIC Document Reproduction Service No. ED 124 746)

Hamby, J. et al. A comparison study of the benefits of secondary and postsecondary vocational education. Portland, Oregon: Northwest Regional Education Lab., January 1978. (ERIC Document Reproduction Service No. ED 156 909)

Haynes, S. G. The role of Texas' secondary schools in the preparation of youth for employment, 1970. (ERIC Document Reproduction Service No. ED 049 383)

Henry, R. A. Follow-up study of vocational office graduates of Springfield Tennessee high school. Final report. Springfield, Tennessee: Robertson County Schools, 1974. (ERIC Document Reproduction Service No. ED 109 397)

Herrnstadt, I. L., Horowitz, M. A., & Sam, A. M. The transition from school to work: The contribution of cooperative education programs at the secondary level. Boston, Massachusetts: Northeastern University, Department of Economics, August 1979.

Hodges, S. L. Employee-employer assessment of the effectiveness of agricultural mechanics training received at Modesto Junior College. Dissertation Abstracts International, 1975, 35, 6584-A.

Hu, T. W., Lee, M. L., Stromsdorfer, E. W., & Kaufman, J. J. A cost-effectiveness study of vocational education: Final report. University Park, Pennsylvania: Pennsylvania State University, 1968. (ERIC Document Reproduction Service No. ED 029 093)

Iowa Department of Public Instruction. Report on employer follow-up 1978-79 survey. Iowa Department of Public Instruction, 1979.

Katz, D. S., Morgan, R. L., & Drewes, D. W. Vocational education and urban youth: A follow-up study of 1968, 1971, and 1972 graduates of the public schools of the District of Columbia, final report. Raleigh, North Carolina: North Carolina State University, Center for Occupational Education, 1974.

Kaufman, J. J. & Lewis, M. V. The high school diploma: Credential for employment. Final report. University Park, Pennsylvania: Pennsylvania State University, Institute for Research on Human Resources, 1972 (ERIC Document Reproduction Service No. ED 064 664)

Kohen, A. I. & Parnes, H. S. Career thresholds: A longitudinal study of the educational and labor market experiences of male youth. Volume 3. Columbus, Ohio: The Ohio State University, Center for Human Resource Research, May 1970. (ERIC Document Reproduction Service No. ED 054 336)

Larkin, P. G. How students are using the community college to get jobs: A follow-up of career program graduates. Report No. 77-17. Largo, Maryland: Prince George's Community College, Office of Institutional Research, May 1977. (ERIC Document Reproduction Service No. ED 142 261)

Laska, J. A. & Chiou, J. W. A comparative study of the occupational achievement of vocational and non-vocational high school graduates in Texas. Austin, Texas: University of Texas at Austin, Department of Cultural Foundations of Education, Center for International Education, June 30, 1973. (ERIC Document Reproduction Service No. ED 118 944)

Loeb, H. Vocational-technical high school students in Nassau County, 1965-1969. A follow-up survey. Albany, New York: New York State Department of Labor, Division of Research and Statistics, 1973. (ERIC Document Reproduction Service No. ED 083 402)

Ludeman, I. Statewide mathematics performance related to career and vocational education, final report. St. Paul, Minnesota: Minnesota State Department of Education, Office of Statewide Educational Assessemnt, August, 1976. (ERIC Document Reproduction Service No. ED 137 541)

McCowan, R. J., Morgerson, M. D., & Carter, D. E. Occupational education: A survey of secondary school graduates in New York State. Buffalo, New York: State University College at Buffalo, January 1971.

Market Opinion Research. Employers and young people look at vocational education. Detroit, Michigan: Market Opinion Research, 1973.

Molnar, D., Pesut, R. N., & Mihalka, J. A. Cost effectiveness of selected cooperative vocational education programs as compared with vocational education programs without a cooperative component. Final report. Columbus, Ohio: Battelle Memorial Institute. (ERIC Document Reproduction Service No. ED 080 671)

Nassau County Board of Cooperative Educational Services, New York State Department of Labor, and New York State Department of Education. Vocational-technical high school students in Nassau County 1965-1969. A follow-up survey. Albany, New York: New York State Department of Labor, Nassau County Board of Cooperative Educational Services and the New York State Department of Education. April 1973.

National Center for Education Statistics. Effectiveness of high school job training: Assessment of Class of 1972 one and one-half years after graduation. Washington, D.C.: National Center for Education Statistics, (DHEW), August 29, 1975. (ERIC Document Reproduction Service No. ED 113 526)

Noeth, R. J. & Hanson, G. R. Education and employment of post-secondary vocational-technical and transfer education students after five years. Journal of Vocational Education Research, 1976, 1 (3), 15-30.

Nolfi, G. J. et al. Experience of recent high school graduates: The transition to work or postsecondary education. Cambridge, Massachusetts: University Consultants, Inc., 1977.

Oregon Department of Education and Coordinating Council. 1974 high school graduate and dropout follow-up system, summary of findings. Oregon Department of Education and Educational Coordinating Council, 1975.

Parker, J., Trujillo, E., & Gonzales, M. Over $4.5 million earned: Closing reports for cooperative vocational part-time training in New Mexico. New Mexico State Department of Education, 1978.

Parker, J. R., Green, M., Gonzales, M., Trujillo, E., & English D. 93% employed: A follow-up of New Mexico secondary students who completed vocational programs in 1977. New Mexico State Department of Education, 1979.

Parker, J. R., Whaley, K., & Uranga, R. 93% employed: A follow-up of New Mexico secondary students who completed vocational programs in 1976. New Mexico State Department of Education, 1977.

Parker, J. R., Whelan, R., Gonzales, M., Trujillo, E., & English, D. 1978 New Mexico State Department of Education. New Mexico State Department of Education, 1979.

Parnes, H., Miljus, R.C., & Spitz, R. S. Career thresholds: A longitudinal study of the educational and labor market experiences of male youth, Volume 1. Columbus, Ohio: Center for Human Resource Research, The Ohio State University, 1970.

Peng, S.S., Stafford, C.E., & Tlbert, R. J. National longitudinal study of the high school class of 1972. Review and annotations of study reports. Durham, North Carolina: Center for Educational Research and Evaluation, Research Triangle Institute, Research Triangle Park, May 1977.

Preston, J. Vocational technical and adult education: Student follow-up study of 1974-75 completions. Sarasota County, Florida: Sarasota County Board of Public Instruction, May 21, 1976. (ERIC Document Reproduction Service No. ED 124 685)

Quanty, M. 1975 career student follow-up: Initial placement. Overland Park, Kansas: Johnson County Community College, Office of Institutional Research, April 1976. (ERIC Document Reproduction Service No. ED 126 999)

A report to the Iowa Department of Public Instruction on employer reactions to employees trained in preparatory career education programs. Iowa City, Iowa: American College Testing Program, 1977. (ERIC Document Reproduction Service No. ED 155 493)

Research Office, Southwestern College. Vocational follow-up report, students completing programs - Fall 1972 and Spring 1973. Chula Vista, California: Southwestern College, 1974. (ERIC Document Reproduction Service No. ED 097 932)

Richardson, W. B. An analysis of factors influencing the earnings of Indiana high school vocational graduates. Final report. Lafayette, Indiana: Purdue University, Department of Education, January 1975. (ERIC Document Reproduction Service No. ED 112 196)

Richardson, W. B. & McFadden, J. B. An identification of employment patterns of vocational graduates of Indiana secondary schools. Final report. Lafayette, Indiana: Purdue University, Department of Education, January 1975. (ERIC Document Reproduction Service No. ED 112 197)

Roberts, F. C. Technical-vocational-occupational five year follow-up study 1967-72. Phase I, descriptive statistics. Lancaster, California: Antelope Valley College, 1974. (ERIC Document Reproduction Service No. ED 092 180)

Robon, N. C. A comparative study of high school, two year college and four year college vocational/technical/professional selected business graduates with regard to their first full-time jobs and salary obtained after graduation. Paper presented at the Annual Forum of the Association for Institutional Research 1977, (18th, Houston Texas, 1978). (ERIC Document Reproduction Service No. ED 154 861)

Schowalter, L. M. The relationship of high school curriculum and other in-school characteristics to employment success one year after graduation. University Park, Pennsylvania: Pennsylvania State University, 1974. (ERIC Document Reproduction Service No. ED 092 846)

Schriver, W. R. & Bowlby, R. An analysis of differential benefits from vocational training. Final report. Memphis, Tennessee: Memphis State University, Center for Manpower Studies, 1971. (ERIC Document Reproduction Service No. ED 052 348)

Shymoniak, L. R. The analysis of cost effectiveness vocational education programs in selected California community colleges. (Doctoral dissertation, University of California, Los Angeles, 1972). Dissertation Abstracts Interational, 1972, 33, 1388-A.

Strickler, R. E. Change in selected characteristics of students betwen ninth and twelfth grades as related to high school curriculum. University Park, Pennsylvania: Pennsylvania State University, 1973. (ERIC Document Reproduction Service No. ED 078 329)

Swanson, A. D. A study of the costs, benefits, and effectiveness of occupational education. Buffalo, New York: State University of New York at Buffalo, Faculty of Educational Studies, March 1976. (ERIC Document Reproduction Service No. ED 120 523)

Tabler, K. National longitudinal study of the high school class of 1972. Tabular summary of the first follow-up questionnaire data. Durham, North Carolina: Research Triangle Institute, 1976. (ERIC Document Reproduction Service No. ED 143 677)

Tatham, E. L. et al. Three JCCC career student follow-ups, 1974. May 1975. (ERIC Document Reproduction Service No. ED 110 142)

Terry, J. R. The effectiveness of the cooperative on-the-job training programs at Minnetonka high school. Unpublished paper submitted to the faculty of the University of Minnesota, 1975.

Texas Advisory Council for Technical/Vocational Education. Learning by vocations: Views on vocational education by former high school students after five years of real-life experiences, 1978.

Troutman, F. H. & Breshears, S. G. Evaluation of Arkansas vocational training programs in relation to economic development, part II - Survey of vocational schools' performance. Industrial Research and Extension Center Publication No. L-6 of the University of Arkansas: Upjohn Institute for Employment Research, Washington, D.C., April 1969. (ERIC Document Reproduction Service No. ED 039 327)

University of Hawaii Community Colleges. Hawaii Community College vocational technical graduate follow-up studies, 1968-1971. Hilo, Hawaii: University of Hawaii, 1972. (ERIC Document Reproduction Service No. ED 066 156)

Van Bramer, P. Follow-up study of 1978 graduates Madison Area Technical College. Madison, Wisconsin: 1979.

Von Stroh, G. E. A socio-economic study of vocational-technical education students. 1968. (ERIC Document Reproduction Service No. ED 047 122)

Wilms, W.W. Public and Proprietary vocational training: A study of effectiveness. Lexington, Massachusetts: Lexington Books, 1975. (ERIC Document Reproduction Service No. ED 100 459)

Wisconsin Board of Vocational, Technical and Adult Education. 1977-78 statewide student follow-up report. Madison, Wisconsin: Wisconsin Board of Vocational, Technical, and Adult Education, 1979.

Zeller, F. A., Shea, J. R., Kohen, A. I., & Meyer, J. A. Career thresholds: A longitudinal study of the educational and labor market experiences of male youth. Volume 2. Columbus, Ohio: Center for Human Resource Research, The Ohio State University, 1970. (ERIC Document Reproduction Service No. ED 047 104)

Note: This paper is based on Mertens, D. M., McElwain, D. Garcia, G., & Whitmore, M. The Effects of participating in vocational education: Summary of studies reported since 1968. Columbus, Ohio: The Ohio State University, The National Center for Research in Vocational Education, 1980. It was supported in part by Contract No. OEC-300-78-0032 from the Department of Education, Office of Vocational and Adult Education.